

RI Science Community of Practice

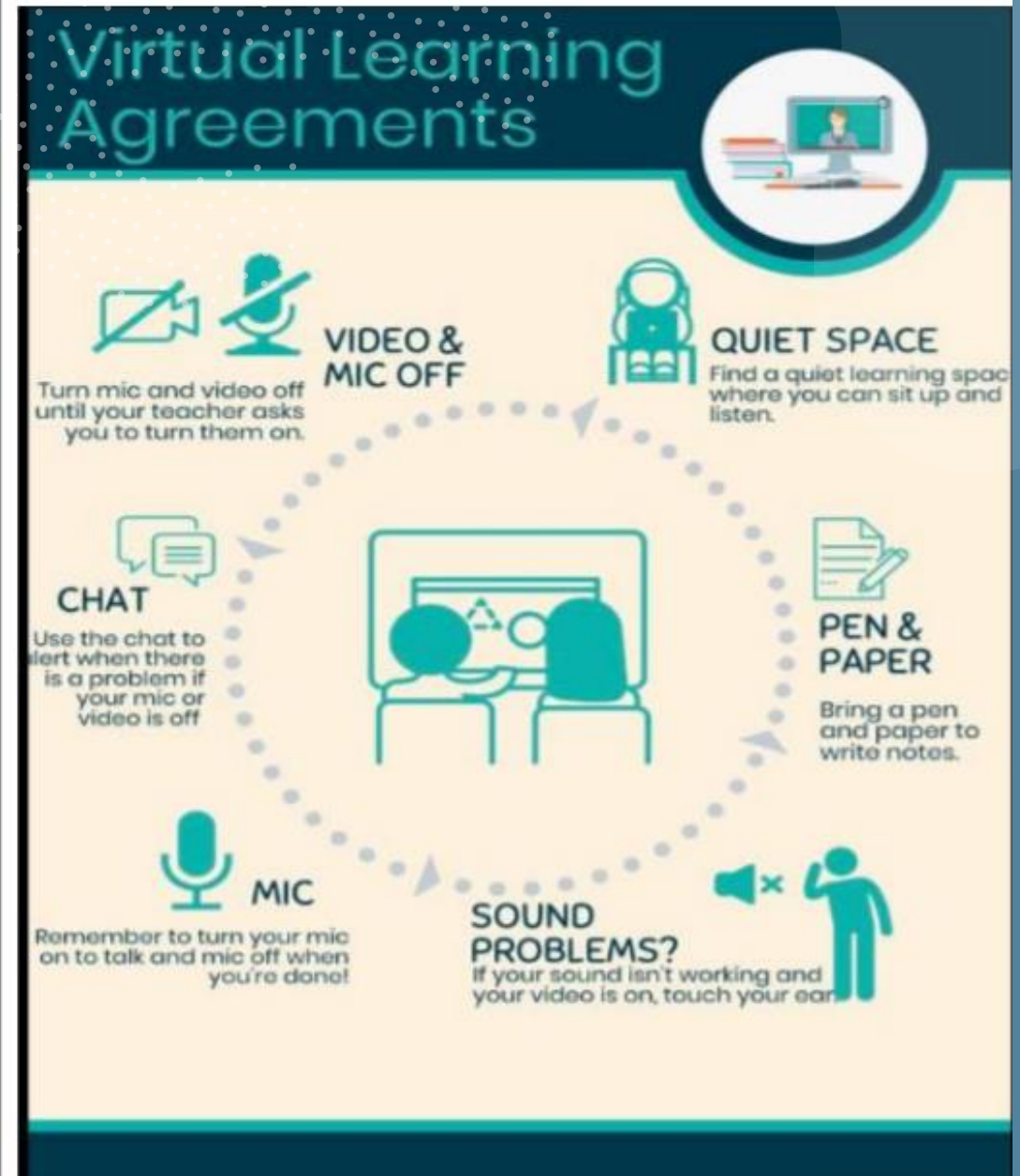
February 8, 2021

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Carolyn Higgins ~ STEM Specialist

Welcome

We will use the chat to ask questions. Will attempt to capture them and share out an FAQ after the meeting.



Updates:



[STEM NEWSLETTER](#)



NGSA TEST COORDINATOR
WEBINAR FEB 11, 1:00PM

Agenda

1. Overview of the RI NGSA
2. Strategies to Support All Students
3. Sharing Local Strategies across the Community
4. RI NGSA Support Resources



Overview of the RI NGSA

What is the NGSA?

- The Rhode Island Next Generation Science Assessment (NGSA) is a high-quality assessment that fulfills federal requirements for assessing science at the elementary, middle, and high school levels (grades 5, 8, and 11)
- NGSA assesses students' understanding of the Next Generation Science Standards (NGSS), measuring students' science knowledge as well as their ability to think critically, analyze information, and solve complex problems
 - *Science & Engineering Practices (SEP)* were designed to set forth the knowledge and skills required for students to succeed in jobs and opportunities in science, technology, engineering, and mathematics
 - *Disciplinary core ideas (DCI)* are the fundamental ideas that are necessary for understanding a particular science discipline
 - *Crosscutting concepts (CCC)* are the concepts connect across different disciplines or situations that students can use to connect new learning to prior experience
- Rhode Island and Vermont partnered to develop this assessment, built with items developed by ten states



NGSA Test Configuration

- Grades 5, 8, and 11 tests assess students' understanding of the NGSS across the corresponding grade band (3-5, 6-8, and high school)
- Students at each grade (5, 8, & 11) will be presented with 6 item clusters and 12 stand-alone items
 - **Item clusters** include a stimulus and a series of questions that generally take students about 6-12 minutes to complete
 - **Stand-alone items** are shorter and generally take 1-3 minutes to complete
- All items ask students to use science and engineering practices and apply their understanding of disciplinary core ideas and crosscutting concepts to make sense out of real-world phenomena
- Test configuration for spring 2021 administration
 - 4 segments will create 2 distinct sessions of equal length that will appear as separate tests in the Test Administrator Interface.
 - Content for each session will cover the three domains (Life Sciences, Physical Sciences, Earth/Space Sciences).
 - Variety of item types including simulations and animations.
 - Segments, and the items within each segment, are assigned randomly.
 - On average, students will receive 8 standalones and 4 clusters per session; some may be field test items.



Stand Alone Items

Allow more PEs to be assessed on a test

Are 2 or 3 dimensional

Can have multiple parts

Computer scored

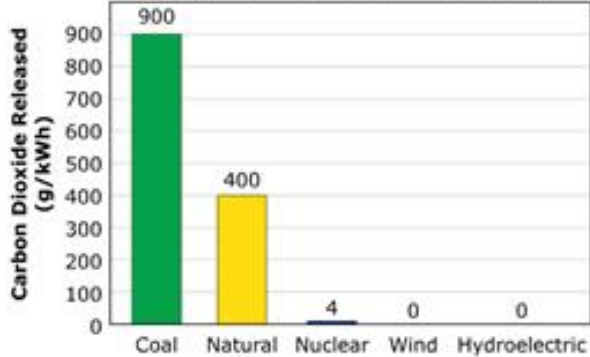
Stand Alone Items

Questions: 1 Grade 5 Science (0 out of 5) QUEST (Student ID: QUEST) QUEST SESSION

1
QUEST

Many different energy sources are used to produce electricity. The Amount of Carbon Dioxide Released graph shows the amount of carbon dioxide gas released by some energy sources, in grams per kilowatt hour (g/kWh).

Amount of Carbon Dioxide Released



The bar graph displays the amount of carbon dioxide released in grams per kilowatt hour (g/kWh) for five energy sources. The y-axis ranges from 0 to 900 g/kWh in increments of 100. The x-axis lists the energy sources: Coal, Natural gas, Nuclear, Wind, and Hydroelectric. The bars show the following values: Coal (900 g/kWh), Natural gas (400 g/kWh), Nuclear (4 g/kWh), Wind (0 g/kWh), and Hydroelectric (0 g/kWh).

Energy Source	Carbon Dioxide Released (g/kWh)
Coal	900
Natural gas	400
Nuclear	4
Wind	0
Hydroelectric	0

Which change in energy sources would cause the greatest **decrease** in the amount of carbon dioxide released?

- Ⓐ replacing natural gas with coal
- Ⓑ replacing nuclear with natural gas
- Ⓒ increasing wind and reducing nuclear
- Ⓓ increasing hydroelectric and reducing coal



Stand Alone Items

3

An adult holds a magnifying glass over the ground on a sunny day and a small point of light is seen below it.



Part A

Use the Add Arrow tool to draw **three** arrows to model how the small point of light is formed on the ground.

Figure 1. Magnifying Glass

Key

- sun rays
- pinpoint of light

absorbed by
reflected off
produced by
refracted through

When light enters the magnifying glass, light is [] the glass to form the small point of light.

Part B

Click on the blank boxes and select words or phrases from the dropdown menus in the model created in part A.

When light enters the magnifying glass, light is [] the glass to form the small point of light.

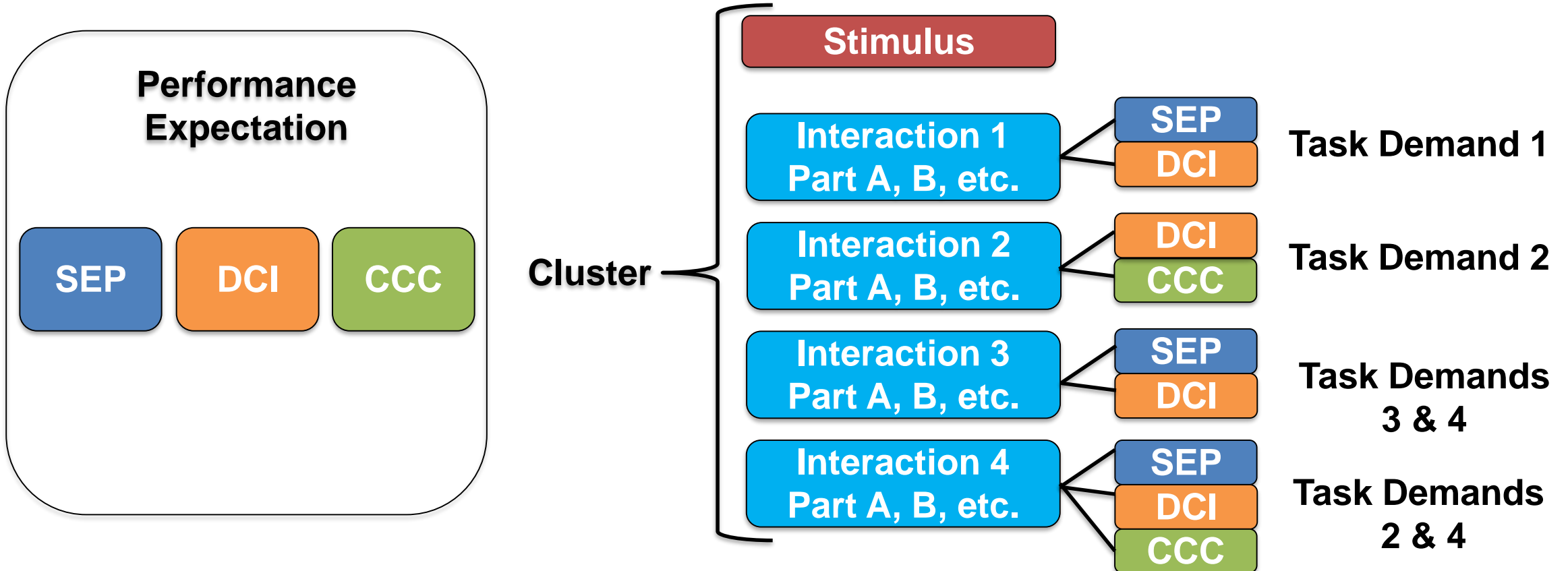


The Structure of the Clusters

- Each cluster begins with a **phenomenon**, which anchors the entire cluster. The interactions within the cluster all address the phenomenon.
- Each cluster engages the student in a grade-appropriate, meaningful **scientific activity** aligned to a specific standard.
- A **cluster task statement** comes at the end of the stimulus and an overview of the point of the cluster.
- Each interaction in the cluster **aligns** to at least two of the three dimensions (SEP, DCI, CCC) and if possible, all three.



The Structure of the Clusters



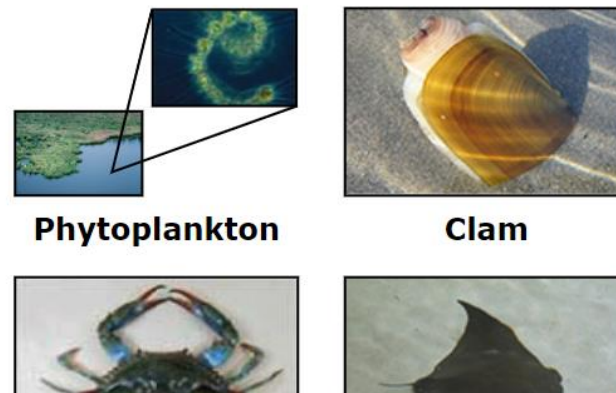
Leftside Stimulus and Task Statement

In the Chesapeake Bay, a clam is seen with its siphon extended, which is a body part used to feed on phytoplankton in the water. Later, a blue crab and a cownose ray are seen eating the clams.

Phytoplankton use energy from sunlight to make food.

Figure 1 shows pictures of phytoplankton, a clam with its siphon extended, a blue crab, and a cownose ray.

Figure 1. Phytoplankton, Clam, Blue Crab, Cownose Ray



Your Task

In the questions that follow, you will model the flow of matter among phytoplankton, clams, blue crabs, and cownose rays.

Rightside Test Item Interaction

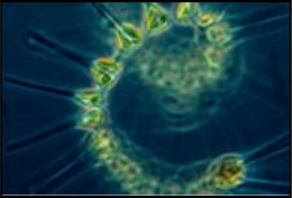



3 t A

Use the Add Arrow tool to draw arrows showing the flow of matter in the Chesapeake Bay.

- Each arrow must begin and end on a picture of an organism.

Delete Add Arrow

Figure 2. Incomplete Chesapeake Bay Food Web

 Phytoplankton	 Clam
	



Part B

Select **two** statements that describe how matter flows among phytoplankton, blue crabs, and cownose rays.

- ☒ Matter flows from consumer to producer.
- ☐ Matter flows from producer to consumer.
- ☐ Matter flows from consumer to consumer.
- ☐ Matter flows from consumer to decomposer.
- ☐ Matter flows from decomposer to consumer.

Part C

Table 1 shows other organisms in the Chesapeake Bay and their diets.

Table 1. Organisms in the Chesapeake Bay and Their Diets

Organisms	Diets
Oysters	Plankton
Bacteria	Organisms that are no longer living
Bull sharks	Fish, sharks, rays, turtles, dolphins
Laughing gulls	Fish, insects, clams, oysters, trash from humans

Using the information in Table 1, click on the blank boxes and first select the organism that completes the flow of matter in part A. Then, select the process by which this occurs.

Organism
<input type="text"/>

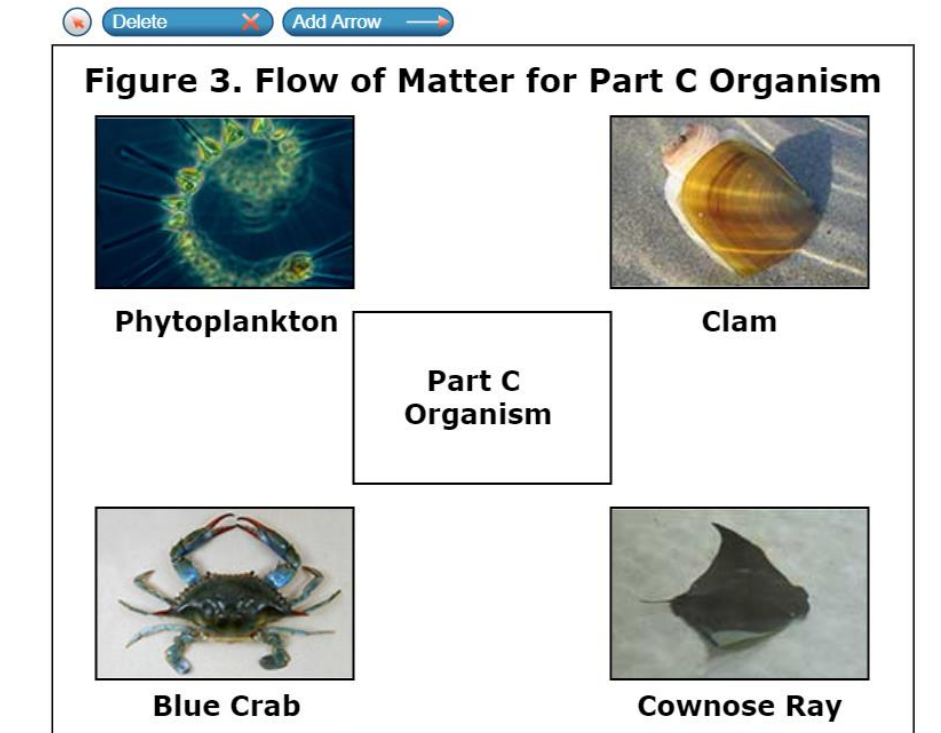
Process
<input type="text"/>



Part D

Use the Add Arrow tool to draw arrows showing the flow of matter only among the organism you chose in part C and the other organisms.

- Each arrow must begin and end on a picture of an organism or part C organism.



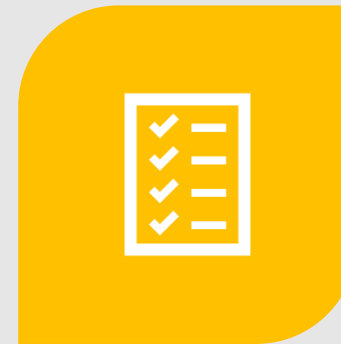
Strategies to Support All Students



FAMILIARIZE YOURSELF WITH
THE TEST SPECIFICATIONS &
USE FOR ASSESSMENT DESIGN



MAKE SURE STUDENTS ARE
EXPERIENCED WITH TECHNICAL
ASPECTS OF PLATFORM



PLAN FOR USING PRACTICE
TEST ITEMS

Item and Cluster Specifications

- Item and cluster specifications are designed to guide the work of item writers and reviewers.
- Specifications are a roadmap for writers to properly align items to the three-dimensions that comprise each Performance Expectation.
- Use for developing local assessments
- RIDE's NGSA webpage: www.ride.ri.gov/NGSA

Test Design



- Elementary School Level Item Specifications
- Middle School Level Item Specifications
- High School Level Item Specifications

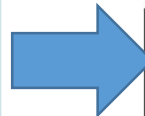


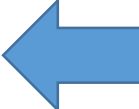




How will understanding the Test Item Specifications support science instruction and assessment?

- Build an understanding for developing three-dimensional NGSS assessments.
- Grades 3-11, use to make common benchmark assessments that promote the application of content and practices rather than memorization of facts.
- Test design specs for developing local formative and summative assessments:
 - Application of expectations for each PE
 - Content limits
 - Essential vocabulary
 - Possible phenomena and task demands
 - Use as a backward design for their instruction
 - Create ongoing formative and summative embedded assessments

Test Item Spec Walkthrough

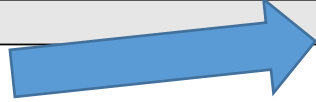
	Performance Expectation	5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.		
	Dimensions	 Developing and Using Models <ul style="list-style-type: none">• Develop a model to describe phenomena.	 LS2.A: Interdependent Relationships in Ecosystems <ul style="list-style-type: none">• The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plant parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. LS2.B: Cycles of Matter and Energy Transfer in Ecosystems <ul style="list-style-type: none">• Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases and water from the environment and release waste matter (gas, liquid, or solid) back into the environment.	 Systems and System Models <ul style="list-style-type: none">• A system can be described in terms of its components and their interactions.



➔	Clarifications and Content Limits	<p>Clarification Statements</p> <ul style="list-style-type: none"> • Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. • Examples of systems could include organisms, ecosystems, and Earth. <p>Content Limits</p> <ul style="list-style-type: none"> • <u>Assessment does not include</u>: molecular explanations.
➔	Science Vocabulary Students Are Expected to Know	Organism, bacteria, fungus, algae, gas, nutrients, producer, consumer, decomposer, cycle, conserve, products, relationship, waste, recycle, species, balance
➔	Science Vocabulary Students Are Not Expected to Know	Chemical process, reaction, molecule, carbon, carbon dioxide, oxygen, sugar, aerobic, anaerobic, photosynthesis
➔	Phenomena	
	Context/ Phenomena	<p>Some example phenomena for 5-LS2-1:</p> <ul style="list-style-type: none"> • Insects in a terrarium only survive when bacteria and plants are present. • A new fish tank must rest for 2–3 weeks with water before introducing fish or the fish die. • Under a microscope, a sample of soil contains many bacteria, but a sample of desert sand does not. • Farmers put fish in stock tanks to keep them clean.



This Performance Expectation and associated Evidence Statements support the following Task Demands.
Task Demands



1. Select or identify from a collection of potential model components, including distractors, the parts of a model needed to describe the movement of matter among plants, animals, decomposers, and the environment.*
2. Manipulate the components of a model to demonstrate properties, processes, and/or events that result in the movement of matter among plants, animals, decomposers, and the environment, including the relationships of organisms and/or the cycle(s) of matter and/or energy.
3. Articulate, describe, illustrate, select, or identify the relationships among components of a model that describe the movement of matter among plants, animals, decomposers, and the environment.
4. Make predictions about the effects of changes in model components, including the substitution, elimination, or addition of matter and/or an organism and the result.

*denotes those task demands which are deemed appropriate for use in stand-alone item development

Use the Task Demands to create or revise local assessments. Not all curriculum publishers use 3D assessments.



Considerations for Online Practice Items



Review



[Model/Think Aloud](#)



Integration by Performance Expectation



Grade 5 share expectations with grade 3
and 4

Teach Technical Proficiency


Sample Test Page



[PDF of NGS Help Guide](#)

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RIDE


Rhode Island
Department
of Education

Rhode Island

Next Generation Science Assessment




TA Practice Site



Practice Test – Test Administrator Resources

Welcome, Practice Test – Test Administrator



Announcements

- Updated Training Tests are now available on the Rhode Island Next Generation Science Assessment Portal. New features include updated standalone items and a Spanish language version training test.

Training Tests help Test Administrators and Students become familiar with the assessment system, functionality, and item types. You can access the Training Test [here](#).

An updated [Training Test Brochure](#) and [Training Test User Guide](#) is also available in the Resources section of the portal.



Updated 2/2/2018

RIDE Rhode Island
Department
of Education

Rhode Island Next Generation Science Assessment (RI NGSA)
Technology Skills for Computer-Based Assessment

- Teachers and students should use the online practice tests and become fluent with the [technical skills required for the computer-based assessment](#) (posted at www.ride.ri.gov/NGSA).

- High School Students will need to understand how to use an online Desmos calculator, if not using their own.***

Skills	Examples and Notes
General navigation skills	
Using navigation buttons	Login, logout, username, password, save, resume, quit
Pointing and selecting	Single-click/double-click/right-click/click-and-drag/highlight text/move mouse pointer
Switching to streamline mode	Click on arrow to expand either left or right side of screen
Keyboarding	Identify, locate, use letter, number, and punctuation keys to enter characters; use special keys (e.g., enter/return, spacebar, delete, backspace, tab, number pad, etc.)

Accessibility and accommodations	
Changing colors	Alter background or text color
Listening to content onscreen	Use a text-to-speech (TTS) reader to hear content
Eliminating/masking answer choices	Strikethrough and other options for eliminating answer choices
Using line readers/guides	Use a digital line reader/guide to aid in reading text onscreen
Highlighting text	Use a pointing device (such as a mouse) to highlight text
General answering	
Inputting text	Use finite space (or a text box that scrolls as you type) to respond to constructed response and fill-in-the-blank test items
Dragging and dropping	Distinguish between instances when an answer option can be used only once or can be dragged and dropped multiple times.
Selecting from drop-down menus	Use a drop-down menu to make a selection
Extracting text	Highlight and drag and drop text in a specific location
Word processing	Basic features (e.g., font size, bold, italic, underline, bulleting), spell checker, etc.



Sharing Local
Strategies
Across the Science
Community

Jamboard

[3-8 Jamboard](#)

[HS Jamboard](#)

1. Collaborate on Jamboard to share effective strategies and ask questions.
2. Use the Jamboard that for your grade level (3-8 or HS). If you are not part of a specific grade level, you can choose either.
3. Each frame of the Jamboard has a different element of NGSA application.
4. Add a green sticky note to share an effective strategy that you have used.
5. Add an orange sticky note to ask a question about the element.
6. Post something on each frame, if possible.
7. Review others' responses and if you have used the same strategy or have the same question, add a checkmark with the pen tool.

Elements of NGSA Application:

- **Curriculum, Instruction, & Assessment**
- **Practicing Technical Proficiency with Students**
- **Vertical Grade Level Collaboration**
- **Practice Test Activities**

RI NGSA Support Resources

RI NGSA Assessment page

<https://www.ride.ri.gov/InstructionAssessment/Assessment/NGSAAssessment.aspx>

RI Portal (Practice Tests, TA Certification, and more)

<https://ri.portal.cambiumast.com/>

Practice Test Brochure "How To":

https://ri.portal.cambiumast.com/core/fileparse.php/1631/urlt/RI_2019-20_NGSA-Practice-Test_Brochure.pdf

Test Item Specifications

Elementary:

<https://www.ride.ri.gov/Portals/0/Uploads/Documents/Instruction-and-Assessment-World-Class-Standards/Assessment/NGSA/ES-Specs-Consolidated-Set.pdf>

Middle School:

<https://www.ride.ri.gov/Portals/0/Uploads/Documents/Instruction-and-Assessment-World-Class-Standards/Assessment/NGSA/MS-Specs-Consolidated-Set.pdf>

High School:

<https://www.ride.ri.gov/Portals/0/Uploads/Documents/Instruction-and-Assessment-World-Class-Standards/Assessment/NGSA/HS-Specs-Consolidated-Set.pdf>

Application to participate in test item review 2021

<https://docs.google.com/forms/d/e/1FAIpQLScdIlx4BjuZE6fQksng2rTyt-73G9AB97GwdCV0EpndWEbGrQ/viewform>

NGSA Tools Help Guide: https://drive.google.com/file/d/1d1DxYDwxuUc576_2BO_LO3NBbn9Vduzh/view

Thank you for
joining the
conversation!

- A copy of this presentation can be found on Science Community of Practice webpage:
- Please email questions to Erin Escher
- Erin.escher@ride.ri.gov